



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

### TIDEWATER REGIONAL OFFICE

5636 Southern Boulevard, Virginia Beach, Virginia 23462

(757) 518-2000 Fax (757) 518-2009

[www.deq.virginia.gov](http://www.deq.virginia.gov)

Doug Domenech  
Secretary of Natural Resources

David K. Paylor  
Director

Francis L. Daniel  
Regional Director

May 13, 2010

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Mr. John A. Rossi  
Vice President  
Western Refining Yorktown, Inc.  
2201 Goodwin Neck Road  
Yorktown, VA 23692

RE: Reissuance of VPDES Permit No. VA0003018  
Western Refining Yorktown, Inc.  
Yorktown, VA 23692

Dear Mr. Rossi:

The enclosed effluent limitations and monitoring requirements for the above referenced permit have been approved. Additionally, enclosed is a copy of the fact sheet page that describes public participation in the permitting process. Please replace the pages in fact sheet that you received with the draft permit with these pages.

Your permit is also enclosed. In accordance with the permit, you are required to submit monitoring reports to the following address:

Department of Environmental Quality (DEQ)  
Tidewater Regional Office  
5636 Southern Boulevard  
Virginia Beach, VA 23462

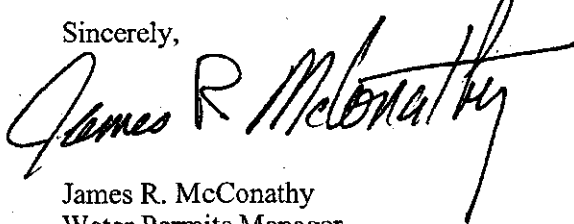
The reporting forms are included with the permit. The first report (DMR) is due for the month of June, 2010 by July 10, 2010. The first report (DMR) is due for the annual period of 2011 by January 10, 2012. DEQ would like to thank you for participating in our e-DMR program and we welcome you to continue to participate for this permit term.

As provided by Rule 2A:2 of the Supreme Court of Virginia, you have thirty days from the date of service (the date you actually received this decision or the date it was mailed to you, whichever occurred first) within which to appeal this decision by filing a notice of appeal in accordance with the Rules of the Supreme Court of Virginia with the Director, Department of Environmental Quality. In the event that this decision is served on you by mail, three days are added to that period.

Alternatively, any owner under Section 62.1-44.16, 62.1-44.17, and 62.1-44.19 of the State Water Control Law aggrieved by any action of the State Water Control Board taken without a formal hearing, or by inaction of the Board, may demand in writing a formal hearing of such owner's grievance, provided a petition requesting such hearing is filed with the Board. Said petition must meet the requirements set forth in Section 1.23(b) of the Board's Procedural Rule No. 1. In cases involving actions of the Board, such petition must be filed within thirty days after notice of such action is mailed to such owner by certified mail.

If you have any additional questions, please do not hesitate to contact Melinda Woodruff at 757-518-2174.

Sincerely,

A handwritten signature in black ink, reading "James R. McConathy". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

James R. McConathy  
Water Permits Manager

JRM/

cc: DEQ - OWPP, TRO File 33 PPT  
EPA - Region III (3WP12)

Encl: Permit No. VA0003018  
Revised Fact Sheet Pages

EPA COMMENTS RECEIVED ON DRAFT PERMIT: Document any comments received from the U.S. Environmental Protection Agency and noted how resolved.

EPA has no objections to the adequacy of the draft permit.

ADJACENT STATE COMMENTS RECEIVED ON DRAFT PERMIT: Document any comments received from an adjacent state and noted how resolved.

Not Applicable.

OTHER AGENCY COMMENTS RECEIVED ON DRAFT PERMIT: Document any comments received from any other agencies (e.g., VIMS, VMRC, DGIF, etc.) and noted how resolved.

Not Applicable.

OTHER COMMENTS RECEIVED FROM RIPARIAN OWNERS/CITIZENS ON DRAFT PERMIT: Document any comments received from other sources and note how resolved.

The application and draft permit have received public notice in accordance with the VPDES Permit Regulation, and no comments were received.

PUBLIC NOTICE INFORMATION: Comment Period: Start Date April 11, 2010  
End Date May 11, 2010

Persons may comment in writing or by e-mail to the DEQ on the proposed reissuance of the permit within 30 days from the date of the first notice. Address all comments to the contact person listed below. Written or e-mail comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The Director of the DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requestor's interests would be directly and adversely affected by the proposed permit action.

All pertinent information is on file and may be inspected, and arrangements made for copying by contacting Melinda Woodruff at: Department of Environmental Quality (DEQ), Tidewater Regional Office, 5636 Southern Boulevard, Virginia Beach, VA 23462. Telephone: 757-518-2174 E-mail: Melinda.Woodruff@deq.virginia.gov

Following the comment period, the Board will make a determination regarding the proposed reissuance. This determination will become effective, unless the Director grants a public hearing. Due notice of any public hearing will be given.

30. ADDITIONAL FACT SHEET COMMENTS/PERTINENT INFORMATION:

TABLE II - INDUSTRIAL EFFLUENT LIMITATIONS/MONITORING

OUTFALL No.: 001

Outfall Description: Final discharge of treated process and sanitary wastewaters (internal outfall 101), and once-through cooling waters (internal outfall 102)

SIC CODE: 2911

(X) Final Limits      ( ) Interim Limits      Effective Dates -      From: Reissuance Date To: Expiration

PARAMETER & UNITS	BASIS FOR LIMITS	MULTIPLIER OR PRODUCTION	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
			MONTHLY AVERAGE	MINIMUM	MAXIMUM	FREQUENCY	SAMPLE TYPE
Flow (MGD)	3		NL	NA	NL	1/Week	EST
pH (S.U.)	3		NA	6.0	9.0	1/Week	GRAB
Total Phosphorus (mg/l) [a]	3		2.0	NA	NL	1/Week	24 Hr. Composite
Fecal Coliform (N/CML) [b]	2		200	NA	NA	2/Month	Grab
Enterococci (N/CML) [c]	2		35	NA	NA	2/Month	Grab

NA = NOT APPLICABLE; NL = NO LIMIT, MONITORING REQUIREMENT ONLY

24Hr. Composite = 24-hour composite consisting of grab samples collected at hourly intervals and combined in proportion to flow.

2/Month = Two samples taken during the calendar month, no less than two weeks apart.

Upon issuance of the permit, Discharge Monitoring Reports (DMRs) shall be submitted to the regional office at the frequency required by the permit regardless of whether an actual discharge occurs. In the event that there is no discharge for the monitoring period, then "no discharge" shall be reported on the DMR.

[a] See Parts I.B.5. and I.B.6. for quantification levels and reporting requirements, respectively.

[b] Fecal Coliform monthly average is calculated as a geometric mean.

[c] Enterococci monthly average is calculated as a geometric mean.

The basis for the limitations codes are:

1. Technology (e.g., Federal Effluent Guidelines)
2. Water Quality Standards (9 VAC 25-260 et. seq.)
3. Best Professional Judgment

TABLE II - INDUSTRIAL EFFLUENT LIMITATIONS/MONITORING (CONTINUED)

OUTFALL # 101

Outfall Description: Internal discharge of treated process and sanitary wastewaters, contaminated precipitation runoff from areas associated with refinery operations, and contaminated hydrostatic test waters

SIC CODE: 2911

(x) Final Limits ( ) Interim Limits Effective Dates - From: Reissuance To: Expiration

PARAMETER & UNITS	BASIS FOR LIMITS	MULTIPLIER OR PRODUCTION	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
			MONTHLY AVERAGE	MINIMUM	MAXIMUM	FREQUENCY	SAMPLE TYPE
Flow (MGD)	3		NL	NA	NL	Continuous	Totalized and Recorded
pH (S.U.)	1		NA	6.0	9.0	Continuous	Recorded
BOD5 (lbs/d)	1		550	NA	990	1/Week	24 Hr. Composite
TSS (lbs/d)	1		440	NA	690	1/Week	24 Hr. Composite
TOC (lbs/d)	1		1200	NA	2200	1/Week	24 Hr. Composite
Oil & Grease (lbs/d)	1		160	NA	300	1/Week	Grab
Ammonia (as N) (lbs/d)	1		280	NA	620	1/Week	24 Hr. Composite
Total Phenols (lbs/d)	1		3.0	NA	7.4	1/Week	Grab
Sulfide (lbs/d)	1		2.7	NA	6.1	1/Week	Grab

PARAMETER & UNITS	BASIS FOR LIMITS	MULTIPLIER OR PRODUCTION	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
			MONTHLY AVERAGE	MINIMUM	MAXIMUM	FREQUENCY	SAMPLE TYPE
T. Chromium (lbs/d)	1		3.6	NA	10	1/Month	24 Hr. Composite
Hexavalent Chromium (lbs/d)	1		0.31	NA	0.68	1/Month	Grab

NA = NOT APPLICABLE; NL = NO LIMIT, MONITORING REQUIREMENT ONLY

24Hr. Composite = 24-hour composite consisting of grab samples collected at hourly intervals and combined in proportion to flow.

Upon issuance of the permit, Discharge Monitoring Reports (DMRs) shall be submitted to the regional office at the frequency required by the permit regardless of whether an actual discharge occurs. In the event that there is no discharge for the monitoring period, then "no discharge" shall be reported on the DMR.

The basis for the limitations codes are:

1. Technology (e.g., Federal Effluent Guidelines)
2. Water Quality Standards (9 VAC 25-260 et. seq.)
3. Best Professional Judgment

TABLE II - INDUSTRIAL EFFLUENT LIMITATIONS/MONITORING (CONTINUED)

OUTFALL # 102

Outfall Description: Internal discharge of once-through cooling water

SIC CODE: 2911

(x) Final Limits ( ) Interim Limits Effective Dates - From: Reissuance To: Expiration

PARAMETER & UNITS	BASIS FOR LIMITS	MULTIPLIER OR PRODUCTION	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
			MONTHLY AVERAGE	MINIMUM	MAXIMUM	FREQUENCY	SAMPLE TYPE
Flow (MGD)	3		NL	NA	NL	1/Week	EST
Temperature (°C)	3		NA	NA	44	Continuous	Recorded
Net Total Organic Carbon (mg/l) [a]	3		NA	NA	5.0	1/Week	24 Hr. Composite

NA = NOT APPLICABLE; NL = NO LIMIT, MONITORING REQUIREMENT ONLY

I.S. = Immersion Stabilization

24Hr. Composite = 24-hour composite consisting of grab samples collected at hourly intervals and combined in proportion to flow.

Upon issuance of the permit, Discharge Monitoring Reports (DMRs) shall be submitted to the regional office at the frequency required by the permit regardless of whether an actual discharge occurs. In the event that there is no discharge for the monitoring period, then "no discharge" shall be reported on the DMR.

[a] See Parts I.B.5. and I.B.6. for quantification levels and reporting requirements, respectively.

The basis for the limitations codes are:

1. Technology (e.g., Federal Effluent Guidelines)
2. Water Quality Standards (9 VAC 25-260 et. seq.)
3. Best Professional Judgment

TABLE II - INDUSTRIAL EFFLUENT LIMITATIONS/MONITORING (CONTINUED)

OUTFALL # 002

Outfall Description: Precipitation from runoff associated with a regulated industrial activity, diverted flows from Outfalls 101 and/or 102 during necessary site activities, fire main wastewaters, and uncontaminated wastewaters from hydrostatic testing (internal outfall 201)

SIC CODE: 2911

(x) Final Limits ( ) Interim Limits Effective Dates - From: Reissuance To: Expiration

PARAMETER & UNITS	BASIS FOR LIMITS	MULTIPLIER OR PRODUCTION	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
			MONTHLY AVERAGE	MINIMUM	MAXIMUM	FREQUENCY	SAMPLE TYPE
Flow (MGD)	3		NL	NA	NL	1/Week	EST
pH (SU)	3		NA	6.0	9.0	1/Week	Grab
Total Organic Carbon (mg/l) [a]	3		NL	NA	35	1/Week	Grab
Oil & Grease (mg/l) [a]	3		NL	NA	15	1/Week	Grab
Temperature (°C)	3		NA	NA	44	Continuous	I.S.
Total Phosphorus (mg/l) [a]	3		2.0	NA	NL	1/Month	Grab
Total Arsenic (µg/l) [a]	3		NL	NA	NL	1/Month	Grab
Total Cadmium (µg/l) [a]	3		NL	NA	NL	1/Month	Grab
Total Chromium (µg/l) [a]	3		NL	NA	NL	1/Month	Grab
Fecal Coliform (N/CML) [b]	2		NL	NA	NA	2/Month	Grab
Enterococci (N/CML) [c]	2		NL	NA	NA	2/Month	Grab

NA = NOT APPLICABLE; NL = NO LIMIT, MONITORING REQUIREMENT ONLY

I.S. = Immersion Stabilization

2/Month = Two samples taken during the calendar month, no less than two weeks apart.

24HC = 24-hour composite consisting of grab samples collected at hourly intervals and combined in proportion to flow.



Upon issuance of the permit, Discharge Monitoring Reports (DMRs) shall be submitted to the regional office at the frequency required by the permit regardless of whether an actual discharge occurs. In the event that there is no discharge for the monitoring period, then "no discharge" shall be reported on the DMR.

- [a] See Parts I.B.5. and I.B.6. for quantification levels and reporting requirements, respectively.
- [b] Fecal Coliform monthly average is calculated as a geometric mean.
- [c] Enterococci monthly average is calculated as a geometric mean.

The basis for the limitations codes are:

1. Technology (e.g., Federal Effluent Guidelines)
2. Water Quality Standards (9 VAC 25-260 et. seq.)
3. Best Professional Judgment

TABLE II - INDUSTRIAL EFFLUENT LIMITATIONS/MONITORING (CONTINUED)

OUTFALL # 201

Outfall Description: Discharges of wastewater generated by hydrostatic testing of storage tanks, conveyance piping, and other equipment associated with refinery operations

SIC CODE: 2911

(x) Final Limits ( ) Interim Limits Effective Dates - From: Reissuance To: Expiration

PARAMETER & UNITS	BASIS FOR LIMITS	MULTIPLIER OR PRODUCTION	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS [a]	
			MONTHLY AVERAGE	MINIMUM	MAXIMUM	FREQUENCY	SAMPLE TYPE
Flow (MGD)	3		NA	NA	NL	1/Year	EST
pH (SU)	3		NA	6.0	9.0	1/Year	Grab
Total Petroleum Hydrocarbons (mg/l) [b] [c]	3		NA	NA	15	1/Year	Grab
Benzene (µg/l) [b] [c]	3		NA	NA	50	1/Year	Grab
Toluene (µg/l) [b] [c]	3		NA	NA	175	1/Year	Grab
Ethylbenzene (µg/l) [b] [c]	3		NA	NA	320	1/Year	Grab
Total Xylenes (µg/l) [b] [c]	3		NA	NA	33	1/Year	Grab
Naphthalene (µg/l) [b] [c]	3		NA	NA	10	1/Year	Grab
Total Residual Chlorine (mg/l) [b]	3		NA	NA	NL	1/Year	Grab

NA = NOT APPLICABLE; NL = NO LIMIT, MONITORING REQUIREMENT ONLY

1/Year = Between January 1 and December 31.

Upon issuance of the permit, Discharge Monitoring Reports (DMRs) shall be submitted to the regional office at the frequency required by the permit regardless of whether an actual discharge occurs. In the event that there is no discharge for the monitoring period, then "no discharge" shall be reported on the DMR.

[a] See Part I.B.8. for sampling and monitoring requirements for hydrostatic discharges.

[b] See Parts I.B.5. and I.B.6. for quantification levels and reporting requirements, respectively.

[c] Sampling and reporting required only for wastewater discharges resulting from testing tankage, piping and other equipment associated with the storage of products and feedstocks.

The basis for the limitations codes are:

1. Technology (e.g., Federal Effluent Guidelines)
2. Water Quality Standards (9 VAC 25-260 et. seq.)
3. Best Professional Judgment

TABLE II - INDUSTRIAL EFFLUENT LIMITATIONS/MONITORING (CONTINUED)

OUTFALL # 004

Outfall Description: Discharge of wastewater associated with fire main flushing and freeze protection at offshore pier where tank vessels and barges moor during petroleum product transfer activities

SIC CODE: 2911

(x) Final Limits    ( ) Interim Limits    Effective Dates -    From: Reissuance    To: Expiration

PARAMETER & UNITS	BASIS FOR LIMITS	MULTIPLIER OR PRODUCTION	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
			MONTHLY AVERAGE	MINIMUM	MAXIMUM	FREQUENCY	SAMPLE TYPE
THIS OUTFALL SHALL CONTAIN ONLY DISCHARGES OF FIRE MAIN FLUSHING WASTEWATERS AND DISCHARGES ASSOCIATED WITH FREEZE PROTECTION AT AREAS ASSOCIATED WITH PIER OPERATIONS. THERE SHALL BE NO DISCHARGE OF REFINERY PROCESS WASTEWATERS FROM THIS SOURCE.							

NA = NOT APPLICABLE; NL = NO LIMIT, MONITORING REQUIREMENT ONLY

Upon issuance of the permit, Discharge Monitoring Reports (DMRs) shall be submitted to the regional office at the frequency required by the permit regardless of whether an actual discharge occurs. In the event that there is no discharge for the monitoring period, then "no discharge" shall be reported on the DMR.

The basis for the limitations codes are:

1. Technology (e.g., Federal Effluent Guidelines)
2. Water Quality Standards (9 VAC 25-260 et. seq.)
3. Best Professional Judgment

ATTACHMENT 6

EFFLUENT LIMITATIONS/MONITORING  
RATIONALE/SUITABLE DATA/  
ANTIDEGRADATION/ANTIBACKSLIDING

ATTACHMENT 6  
EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS  
RATIONALE & SUITABLE DATA

Outfall 001 (101 and 102), 002 (201), and 004 in VPDES Permit No. VA0003018 are major industrial discharges from the operation of a petroleum refining facility located on the shore of the York River in Yorktown, Virginia. The facility produces gasoline, propane, butane, jet fuels, furnace oils, distillate fuels, petroleum coke and sulfur. The facility operates 24 hours per day, 365 days per year.

The Western Refining, Inc. site sits adjacent to Virginia Power's Yorktown Power Station and Hampton Roads Sanitation District (HRSD) Yorktown municipal wastewater treatment plant. These facilities work together on several levels of operations. Fuel oils utilized by the power station are conveyed via the refinery pier and used for tank vessel mooring. The attendant conveyance piping and manifold systems are maintained by the refinery. In addition, the refinery and the power station both draw York River water from the same intake channel. Finally, the refinery operates with reclaimed and reused waters from HRSD.

The facility discharges at a maximum 30 day average flow rate of 77.45 MGD. The receiving waters, York River, were assigned a Tier 1 classification. In accordance with 9 VAC 25-560-50, the receiving waters were further assigned Class II waters, tidal waters in the Chesapeake Bay and its tidal tributaries.

Outfall 001 consists of the final discharge of treated process and sanitary wastewaters (internal outfall 101), and once-through cooling waters (internal outfall 102). Outfall 002 consists of precipitation from runoff associated with industrial activity, diverted flows from Outfalls 101 and/or 102, fire main wastewaters, and uncontaminated wastewaters from hydrostatic testing (outfall 201). Outfall 004 consists of wastewater associated with fire main flushing and freeze protection at the offshore pier where tank vessels and barges moor during petroleum product transfer activities.

The facility's production capacity is 70 Mbbl (70,000 thousand barrels per day). This was modified from the original application where 72 Mbbl was listed form 2C.III.C.a. (see e-mail 2/4/10). For the purposes of developing effluent limitations based on the guidelines appearing at 40 CFR 419.22, a daily stream value of 70 Mbbl will be used in the calculations. Based on best professional judgment (BPJ) and the applicable guidelines, the required limitations for this categorical industry's process wastewaters are placed on internal outfall 101. The permittee defined their activity as Sub-Part B-Cracking Category of the Federal Effluent Guidelines, 40 CFR Part 419-Petroleum Refining Point Source Category. As in the previous issued permits for this facility, effluent limitations and monitoring requirements will be developed based on these guidelines.

#### Reclamation and Reuse

The facility incorporates reclamation and reuse waters from the nearby HRSD Yorktown WWTP. This is an existing use prior to the October 2008 Water Reclamation and Reuse Regulation (9 VAC 25-740) and the facility is grandfathered until the use is revised, modified or expanded (9 VAC 25-740-30). Therefore, no new language from this regulation is incorporated into the current permit or fact sheet. However, after reviewing the water flow schematics submitted with Form 2C of this reissuance, all wastewaters come in contact with reclamation and reuse

ATTACHMENT 6, continued  
EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS  
RATIONALE & SUITABLE DATA

waters and therefore bacteria limits are added to Outfall 001 and bacteria monitoring are added to Outfall 002 based on existing Water Quality Standards.

VPDES General Permit for Nutrient Trading (VAN030047)

In the 2005 reissuance of the permit, nutrient limits and monitoring were added to the refinery's permit for total phosphorus and nitrogen based on the Policy for Nutrient Enriched Waters and because the refinery process does in fact generate compounds that contain these nutrients. In the spring of 2007, the refinery added a sour water stripper to the process operations. Process wastewater flows through the sour water stripper prior to entering the facility's sewer for treatment at the wastewater treatment plant. The sour water stripper was installed in order to assist with nutrient removal from the process wastewater.

Then, in April of 2007 a Board initiated modification reissuance for this facility was developed to further address nutrient reporting and monitoring at outfall 001. Permit regulation 9 VAC 25-820-10 (General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia) became effective November 1, 2006. The regulation governs facilities holding individual permits that discharge total nitrogen or total phosphorus to the Chesapeake Bay and its tributaries.

The modification consisted of removing duplicate mass loading effluent limitations, monitoring and reporting requirements for total nitrogen and total phosphorus that is now permitted under their VPDES General Permit for Nutrient Trading (VAN030047), Outfall 500. The general permit contains a schedule of compliance for the load allocations for Total Nitrogen and Total Phosphorus. The final effluent limits effective date is January 1, 2011. Total Phosphorus monitoring frequency was changed to 1/week from 2/Month at Outfall 001 to reflect the requirements in the nutrient general permit.

However, the total nitrogen monitoring and total phosphorus concentration limitation were not removed at that reissuance due to antibacksliding regulations. Since total nitrogen is not limited, this parameter will be removed from monitoring during this reissuance at Outfall 002; total phosphorus is limited and has to remain at this time.

Corrective Measures Implementation Work Plan (CMI WP)

Form 2C Section IV of the VPDES application requests information regarding any activities on site that may affect the discharge for this facility not otherwise described and the facility enclosed their latest revised CMI WP (included in this attachment. The Resource Conservation and Recovery Act (RCRA) Section 3008(h) CMI Final Administrative Order on Consent (CMI Order) became effective on August 18, 2006. This order is administrated by United States Environmental Protection Agency Region III with the assistance of Virginia DEQ.

The revised CMI WP provides updates to the investigations and corrective actions for impacted media (soil, surface water, and groundwater) on site. Contaminants

ATTACHMENT 6, continued  
EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS  
RATIONALE & SUITABLE DATA

of concern were identified as volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), phenols, and heavy metals such as arsenic, chromium, and cadmium. The USEPA determined that remediation was required to address these contaminants. This has been an ongoing project and based on the current project strategy proposed, the remaining construction work will be completed during the term of this permit issuance. The CMI WP proposes the placement of remediation waste in what is called a CAMU (corrective action management unit). CAMU East has already been constructed and CAMU West is in the final design phase. A CAMU enables the use of treatment technologies to enhance the long term effectiveness of remedial action by reducing the toxicity, mobility, or volume of wastes that will remain in place after closure of the CAMU (40 CFR 264.552(c) (6)). The federal regulation further states that risk management activities shall not create unacceptable risks to humans or the environment (40 CFR.264.551(2) (2)).

Groundwater monitoring is part of these investigations as well as standard operations of this type of facility. The purge water or recovered groundwater is sent to through the wastewater treatment system. In addition, storm water run off from these areas of impacted media either drain to the wastewater treatment system or to the ditch system then to the storm water settling basin to discharge from Outfall 002. Discharges from these areas are described on the facility's list of significant materials (see Attachment 9 of this document) from Form 2F of the application and the CMI WP.

Based on review of the data submitted with the application and BPJ, the current monitoring parameters and limitations for Outfall 101 are believed protective of water quality and necessary to evaluate the potential impact of the discharges on receiving waters. None of the contaminants of concern were detected at Outfall 101. Outfall 002 is required to monitor for the heavy metals: arsenic, chromium and cadmium. The Storm Water Pollution Prevention Plan will be updated with the information and protective measures put in place concerning the CAMUs as noted in the CMI WP.

#### Data Review Summary and Changes

The data for the past three years and the analysis submitted with the permit application have been reviewed. The facility complies with all parameters at all outfalls. There are changes to the parameters limitations and monitoring requirements with this reissuance for those effluent limitations calculated using the new production rate on Outfall 101 and bacteria limitations have been placed on Outfall 001 and bacteria monitoring on 002. For specific discussions and rationale please review individual outfall discussions that follow.

#### Outfall 001

Outfall 001 is permitted for treated process wastewaters, storm water from oily areas of the refinery, steam condensate, recovered groundwater, sanitary/gray wastewaters (internal Outfall 101) and once through, non-contact cooling water (Outfall 102). Each of these internal outfalls is discussed more specifically under a separate heading. In general this outfall is the point where these two internal outfalls commingle and are subsequently discharged to the York River.



ATTACHMENT 6, continued  
EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS  
RATIONALE & SUITABLE DATA

The discharge point is a pipe located off-shore beneath the pier and approximately 35 feet down into the York River.

The facility maintains a wastewater treatment system for its process wastewaters, other wastewaters contribute as well. The required limitations for this categorical industry's process wastewaters are placed on internal outfall 101. The permittee's on-site sanitary wastewater is treated at the facility's wastewater treatment plant after it is commingled with the site's process wastewater. Following treatment and release to the conveyance leading to the final discharge from Outfall 001, the discharge from Outfall 101 becomes commingled with the temperature equalized once-through, non-contact cooling water discharge from internal Outfall 102. Outfall 102 is also limited internal to Outfall 001.

Data submitted during the application process for internal Outfall 101 shows there is a contribution of bacteria to the outfall's discharge. Although the contribution is overall a low volume of sanitary wastewaters in comparison to other commingled flows of process wastewaters and contaminated storm water runoff, based on best professional judgment (BPJ), the Water Quality Standards (WQS), and additional monitoring, effluent limitations will be incorporated in to the permit at this reissuance.

At times and to affect repairs to systems internal to the facility and its process operations, wastewaters from both 101 and 102 can be diverted to the site's storm water multi-cell sedimentation basin on a temporary basis.

Flow:                                There is no limit on flow. Monitoring is 1/Week with monthly average and daily maximum reporting requirements. The basis for this is BPJ and is believed necessary to evaluate the potential impact of the discharge on receiving waters. This is standard for industrial operations and no change from the previous permit.

pH:                                    The minimum limit of 6.0 s.u. and maximum limit of 9.0 s.u. with monitoring 1/Week. This requirement is based on BPJ to protect water quality and is limited by the Water Quality Standards (9 VAC-260-50) for Coastal Waters of the State. These limits and monitoring frequency are standard for industrial operations and no change from the previous permit.

Total  
Phosphorus:                            The monthly average limit of 2.0 mg/l with monitoring 1/Week. This is based on antibacksliding regulations, BPJ to protect water quality and is believed necessary to evaluate the potential impact of the discharge on receiving waters since the refinery process would generate compounds that contain phosphorus.

ATTACHMENT 6, continued  
EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS  
RATIONALE & SUITABLE DATA

Fecal

Coliform: A monthly average limit of 200 n/cml. Monitoring required is a grab sample 2/Month. This is based on Water Quality Standards (9 VAC 25-260-160) and is believed protective of instream standards. Current guidance requires fecal coliform monitoring in salt or transition waters if the discharge is to shellfish waters. BPJ

determines that this frequency is adequate to determine compliance with the standard.

Enterococci: A monthly average limit of 35 n/cml. Monitoring required is a grab sample 2/Month. This is based on water quality standards (9 VAC25-260-160).

Outfall 101

This outfall is permitted for storm water from oily areas of the refinery, steam condensate, recovered groundwater, sanitary/gray wastewaters, and treated process wastewaters. The wastewater treatment system consists of both biological and chemical/physical treatment.

All areas of the site that may have storm water in possible contact with hydrocarbons are directed to the wastewater treatment system prior to discharge. These areas include process, distribution, storage and CMI areas. Contaminated runoff is collected and diverted to aboveground storage tanks the wastewater treatment system then commingled with the process wastewater during treatment. In the applicable FEG, under 40 CFR 419.20 for SubPart B (cracking), additional pollutant loading allowances are provided in those cases where the permittee treats contaminated precipitation runoff in addition to process wastewater generated at the same facility. These are included in the final effluent limitations.

Sanitary wastewaters are treated on site in the existing process wastewater treatment system. The total flow into the system is 0.003 MGD (Outfall 101). The wastewaters are directed to septic tanks then in to the combined sewer system leading to the treatment plant for treatment prior to discharge. Prior to release from the facility, the treated process/sanitary wastewaters are commingled with the once-through cooling water treated with a form of chlorine used to control bio-fouling of the distribution system throughout the facility's process operations.

Finally, process wastewaters are collected and treated through the on site wastewater treatment system. The required limitations for the categorical process wastewaters are placed on this outfall. Limitations are based on calculations using the facility's production capacity of 70 Mbbl (stream-day value/Feedstock Rate) and the Federal Effluent Guidelines (FEG) found at 40 CFR

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Part 419 - Petroleum Refining Point Source Category. The permittee defined their specific activity in the application as that defined in SubPart B of those guidelines - Cracking Subcategory. Therefore the provisions and limitations set forth in 40 CFR 419.22 and related sections were employed to develop Part I.A effluent limitations and monitoring requirements for Outfall 101 as displayed below:

Flow: There is no limit on flow. Monitoring is continuous with monthly average and daily maximum reporting requirements. The basis for this is BPJ and is believed necessary to evaluate the potential impact of the discharge on receiving waters. This is standard for industrial operations and no change from the previous permit.

pH: The minimum limit is 6.0 s.u. and the maximum limit is 9.0 s.u. with continuous monitoring requirements. This requirement is based on FEG (40 CFR 419) and the Water Quality Standards (9 VAC-260-50) to protect the Coastal Waters of the State. These limits and monitoring frequency are standard for industrial operations and no change from the previous permit.

BOD<sub>5</sub>: The monthly average limit is 550 lbs/day and the daily maximum limit is 990 lbs/day with monitoring using 24 hour composite 1/Week. This is a technology limit from the FEG based on BPT.

TSS: The monthly average limit is 440 lbs/day and the daily maximum limit is 690 lbs/day with monitoring using 24 hour composite 1/Week. This is a technology limit from the FEG based on BPT.

TOC: The monthly average limit is 1200 lbs/day and the daily maximum limit is 2200 lbs/day with monitoring using 24 hour composite 1/Week. This is a technology limit from the FEG based on BPT.

O & G: The monthly average limit is 160 lbs/day and the daily maximum limit is 300 lbs/day with monitoring using grab sample 1/Week. This is a technology limit from the FEG based on BPT.

Ammonia  
(as N): The monthly average limit is 280 lbs/day and the daily maximum limit is 620 lbs/day with monitoring using 24 hour composite 1/Week. This is a technology limit from the FEG based on BPT.

Total  
Phenols: The monthly average limit is 3.0 lbs/day and the daily maximum limit is 7.4 with monitoring using grab sample 1/Week. This is a technology limit from the FEG based on BPT for the daily maximum and based on BAT for the monthly average.

Sulfide: The monthly average limit is 2.7 lbs/day and the daily maximum limit is 6.1 lbs/day with monitoring using 24 hour composite 1/Week. This is a technology limit from the FEG based on BPT.

ATTACHMENT 6, continued  
EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS  
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Total

Chromium: The monthly average limit is 3.6 lbs/day and the daily maximum limit is 10 lbs/day with monitoring using 24 hour composite 1/Month. This is a technology limit from the FEG based on BAT.

Hexavalent

Chromium: The monthly average limit is 0.31 lbs/day and the daily maximum limit is 0.68 lbs/day with monitoring using grab sample 1/Month. This is a technology limit from the FEG based on BAT.

Outfall 101 PARAMETER-SPECIFIC CALCULATIONS FOR PROCESS WASTEWATERS:

Effluent limitations are initially developed considering a site's production size and process configuration and their capability to make any of five discrete products under the category. These factors appear as numeric values which are applied to development of effluent limitations.

The table found at 40 CFR 419.22(b) (1) yields: Factor a stream-day feedstock value of 70 Mbbls (70,000bbls), a Size Factor (SF) value of 1.04 is applicable for use in the development of the effluent limitations.

The table below was developed to identify the value that is used to determine the Process Factor (PF). The Feedstock Capacities were provided by the permittee in an e-mail dated February 4, 2010.

PROCESS	FEEDSTOCK CAPACITY (1000 BBL/STREAM DAY)	RELATIVE CAPACITY	WEIGHT FACTOR 40CFR419.42 (B) (3)	PROCESS CONFIGURATION
CRUDE DISTILLATION	70.0	1.00 (70/70 = 1)	1	2.71  (2.71 x 1 = 2.71)
VACUUM TOWER	50.0	0.71 (50/70 = 0.59)		
CRUDE DESALTER	70.0	1.00 (70/70 = 1)		
CRUDE PROCESSES TOTAL	190.0	2.71		
FLUID CATALYTIC CRACKING (FCCU)	29.4	0.42 (29.4/70 = 0.42)	6	4.5  (0.75 x 6 = 4.50)
DELAYED COKING	23.0	0.33 (23/70 = 0.328)		
CRACKING/COKING PROCESSES TOTAL	52.4	0.75		
TOTAL				7.21

The process configuration value of 7.21 was used to determine the process factor from the table found at 40 CFR 419.22(b) (2). The PF value of 1.29 is applicable for use in the development of the effluent limitations.

Within the Cracking Subcategory, there are five permitting schemes - best practicable pollution control technology (BPT), best available pollution control technology (BAT), best conventional pollution control technology (BCT),

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EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS  
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pretreatment standards, and new source performance standards (NSPS). For this facility the latter two regulatory schemes are not applicable as the discharges from this facility are treated on site at the facility and not directed to an off site local municipal treatment facility where pretreatment is required. The facility has existed for several decades and is not considered a new source.

The FEG requires a comparison between process wastewater limitations as calculated for the applicable permitting schemes, BPT, BAT, and BCT where the most stringent shall be utilized for calculating the final effluent limitations. The limitations for BPT, BAT, and BCT are found in 40 CFR 419.20, see Table A.

**Biochemical Oxygen Demand (5-day)**

This parameter is limited per the FEG. Of the three relevant permitting schemes, BOD<sub>5</sub> limits are proposed for both BPT (419.22) and BCT (419.24). The limitations are to be expressed as pounds per 1,000 bbl-of feedstock (Mbb1) and developed considering both the Size and Process Factors.

Per BPT

BOD<sub>5</sub> daily max. = 9.9 #/Mbb1 x 70 Mbb1 x 1.04 (SF) x 1.29 (PF) = 929.73 #/day  
BOD<sub>5</sub> 30-day avg. = 5.5 #/Mbb1 x 70 Mbb1 x 1.04 (SF) x 1.29 (PF) = 516.52 #/30-day

Per BAT

No limitations for BOD<sub>5</sub> expressed as BAT.

Per BCT

BPT = BCT.

**Total Suspended Solids**

This parameter is limited per the FEG. Of the three relevant permitting schemes, TSS limits are proposed for both BPT and BCT. The limitations are to be expressed as pounds per 1,000 bbl of feedstock and developed considering both the Size and Process Factors.

Per BPT

TSS daily max. = 6.9 #/Mbb1 x 70 Mbb1 x 1.04 (SF) x 1.29 (PF) = 647.99 #/day  
TSS 30-day avg. = 4.4 #/Mbb1 x 70 Mbb1 x 1.04 (SF) x 1.29 (PF) = 413.21 #/30-day

Per BAT

No limitations for TSS expressed as BAT.

Per BCT

BPT = BCT.

ATTACHMENT 6, continued  
EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS  
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**Total Organic Carbon**

Based on a previous discussion regarding this limiting parameter, it has been determined that the parameter total organic carbon will replace COD as a limiting parameter for Part I.A. of the permit. The limit for TOC will be calculated based on a ratio of 2.2:1 with the applicable BOD<sub>5</sub> limitation.

Per BPT

TOC daily max. = BOD<sub>5</sub> x 2.2 = 9.9 #/Mbb1 x 2.2 = 21.78 #/day  
TOC 30-day avg. = BOD<sub>5</sub> x 2.2 = 5.5 #/Mbb1 x 2.2 = 12.10 #/day

therefore,

TOC daily max. = 21.78 #/Mbb1 x 70 Mbb1 x 1.04 (SF) x 1.29 (PF) = 2045.40 #/day  
TOC 30-day avg. = 12.10 #/Mbb1 x 70 Mbb1 x 1.04 (SF) x 1.29 (PF) = 1136.34 #/30-day

Per BAT

COD limitations are provided in this category without accompanying BOD<sub>5</sub> limitations. The allowances of the TOC replacement parameter are provided. Based on a BPJ determination, the BOD<sub>5</sub> BPT/BCT limits will be used for this purpose.

BPT/BCT = BAT

Per BCT

There are no BCT COD limitations set forth in this section.

**Oil & Grease**

This parameter is limited per the FEG. Of the three relevant permitting schemes, O&G limits are proposed for both BPT and BCT. The limitations are to be expressed as pounds per 1,000 bbl of feedstock and developed considering both the Size and Process Factors.

Per BPT

O&G daily max. = 3.0 #/Mbb1 x 70 Mbb1 x 1.04 (SF) x 1.29 (PF) = 281.74 #/day  
O&G 30-day avg. = 1.6 #/Mbb1 x 70 Mbb1 x 1.04 (SF) x 1.29 (PF) = 150.26 #/30-day

Per BAT

No limitations for O&G expressed as BAT.

Per BCT

BPT = BCT.

**Ammonia (as nitrogen)**

This parameter is limited per the FEG. Of the three relevant permitting schemes, NH<sub>3</sub>-N limits are proposed for both BPT and BAT (419.23). The limitations are to be expressed as pounds per 1,000 bbl of feedstock and developed considering both the Size and Process Factors.

Per BPT

NH<sub>3</sub>-N daily max. = 6.6 #/Mbb1 x 70 Mbb1 x 1.04 (SF) x 1.29 (PF) = 619.82 #/day

ATTACHMENT 6, continued  
EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS  
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NH3-N 30-day avg. =  $3.0 \text{ \#/Mbbbl} \times 70 \text{ Mbbbl} \times 1.04 \text{ (SF)} \times 1.29 \text{ (PF)} = 281.74 \text{ \#/30-day}$

Per BAT

BPT = BAT.

Per BCT

No limitations for NH3-N expressed as BCT.

**Sulfide**

This parameter is limited per the FEG. Of the three relevant permitting schemes, sulfide limits are proposed for both BPT and BCT. The limitations are to be expressed as pounds per 1,000 bbl of feedstock and developed considering both the Size and Process Factors.

Per BPT

Sulfide daily max. =  $0.065 \text{ \#/Mbbbl} \times 70 \text{ Mbbbl} \times 1.04 \text{ (SF)} \times 1.29 \text{ (PF)} = 6.10 \text{ \#/day}$   
Sulfide 30-day avg. =  $0.029 \text{ \#/Mbbbl} \times 70 \text{ Mbbbl} \times 1.04 \text{ (SF)} \times 1.29 \text{ (PF)} = 2.72 \text{ \#/30-day}$

Per BAT

BPT = BAT.

Per BCT

No limitations for sulfide expressed as BCT.

**Phenolic Compounds (Total Phenols), Total Chromium, Hexavalent Chromium**

Both BPT and BAT limitations are applicable for each of these parameters. For BAT limits' development, a specialized approach is required and will be detailed separately, Table B. Under BPT, non-process specific limitations are provided for each of these limiting parameters. Under BAT, the FEG provide different allowances for each of the internal refining processes known to exist at a particular refinery. The most stringent of the calculated limits shall be utilized as the limiting value for each of these three parameters.

ATTACHMENT 6, continued  
EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS  
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**Total Phenols (phenolic compounds)**

This parameter is limited per the FEG. Of the three relevant permitting schemes, total phenols limits are proposed for both BPT and BAT. The limitations are to be expressed as pounds per 1,000 bbl of feedstock and developed considering both the Size and Process Factors.

Per BPT

TPhenols daily max. =  $0.074 \text{ \#/Mbbbl} \times 70 \text{ Mbbbl} \times 1.04 \text{ (SF)} \times 1.29 \text{ (PF)} = 6.95 \text{ \#/day}$

TPhenols 30-day avg. =  $0.036 \text{ \#/Mbbbl} \times 70 \text{ Mbbbl} \times 1.04 \text{ (SF)} \times 1.29 \text{ (PF)} = 3.38 \text{ \#/30-day}$

Per BAT - Refer to Table B for detailed calculations required under BAT.

Per the allowances provided under BAT, the calculated limitations are:

TPhenols daily maximum = 11.73 #/day

TPhenols 30-day average = 2.84 #/30-day

Per BCT

No limitations for total phenols expressed as BCT.

Determination(s)

The TPhenols daily maximum BPT limitation is more stringent (6.35 #/day) than the calculated BAT limit (11.73 #/day). It is a BPJ determination that the BPT daily maximum limitation (6.95 #/day) be used as a limiting value.

The TPhenols 30-day average BAT limitation (2.84 #/30-day) is more stringent than the BPT limit (3.28 #/30-day). It is a BPJ determination that the calculated BAT 30-day average limitation (2.84 #/30-day) be used as a limiting value.

**Total Chromium**

This parameter is limited per the FEG. Of the three relevant permitting schemes, total chromium limits are proposed for both BPT and BAT. The limitations are to be expressed as pounds per 1,000 bbl of feedstock and developed considering both the Size and Process Factors.

Per BPT

TCr daily max. =  $0.15 \text{ \#/Mbbbl} \times 70 \text{ Mbbbl} \times 1.04 \text{ (SF)} \times 1.29 \text{ (PF)} = 14.09 \text{ \#/day}$

TCr 30-day avg. =  $0.088 \text{ \#/Mbbbl} \times 70 \text{ Mbbbl} \times 1.04 \text{ (SF)} \times 1.29 \text{ (PF)} = 8.26 \text{ \#/30-day}$

Per BAT - Refer to Table B for detailed calculations required under BAT

Per the allowances provided under BAT, the calculated limitations are:

TCr daily maximum = 9.59 #/day

TCr 30-day average = 3.35 #/30-day

Per BCT

No limitations for TCr expressed as BCT.



ATTACHMENT 6, continued  
EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS  
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Determination(s)

The TCr daily maximum calculated BAT limitation is more stringent (9.59 #/day) than the BPT limit (14.09 #/day). It is a BPJ determination that the BPT daily maximum limitation (9.59 #/day) be used as a limiting value.

The TCr 30-day average calculated BAT limitation (3.35 #/30-day) is more stringent than the BPT limit (8.26 #/30-day). It is a BPJ determination that the calculated BAT 30-day average limitation (3.35 #/30-day) be used as a limiting value.

**Hexavalent Chromium**

This parameter is limited per the FEG. Of the three relevant permitting schemes, HexCr limits are proposed for both BPT and BAT. The limitations are to be expressed as pounds per 1,000 bbl of feedstock and developed considering both the Size and Process Factors described elsewhere in this attachment, and other site specific considerations if appropriate.

Per BPT

HexCr daily max. =  $0.012 \text{ \#/Mbbl} \times 70 \text{ Mbbl} \times 1.04 \text{ (SF)} \times 1.29 \text{ (PF)} = 1.13 \text{ \#/day}$   
TCr 30-day avg. =  $0.0056 \text{ \#/Mbbl} \times 70 \text{ Mbbl} \times 1.04 \text{ (SF)} \times 1.29 \text{ (PF)} = 0.53 \text{ \#/30-day}$

Per BAT - Refer to Table B for detailed calculations required under BAT

Per the allowances provided under BAT, the calculated limitations are:

HexCr daily maximum = 0.61 #/day  
HexCr 30-day average = 0.28 #/30-day

Per BCT

No limitations for HexCr expressed as BCT.

Determination(s)

The HexCr daily maximum calculated BAT limitation is more stringent (0.61 #/day) than the BPT limit (1.13 #/day). It is a BPJ determination that the BPT daily maximum limitation (0.61 #/day) be used as a limiting value.

The HexCr 30-day average calculated BAT limitation (0.28 #/30-day) is more stringent than the BPT limit (0.53 #/30-day). It is a BPJ determination that the calculated BAT 30-day average limitation (0.28 #/30-day) be used as a limiting value.

ATTACHMENT 6, continued  
EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS  
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Outfall 101 PARAMETER SPECIFIC CALCULATIONS FOR CONTAMINATED STORM WATER RUNOFF:

As part of the FEG, under 40 CFR 419.20 for SubPart B (cracking), additional pollutant loading allowances are provided in those cases where the permittee treats contaminated precipitation runoff in addition to process wastewaters generated at the same facility.

A summary of the different permitting schemes (BPT/BAT/BCT) appears in Table C to this attachment.

From the information in Table C the following determinations have been made for the parameters noted below:

**BOD<sub>5</sub>**

BPT daily max. and 30-day avg. limits = BCT daily max. and 30-day avg. limits.  
There are no BOD<sub>5</sub> limits provided for contaminated runoff under BAT.

**TSS**

BPT daily max. and 30-day avg. limits = BCT daily max. and 30-day avg. limits.  
There are no TSS limits provided for contaminated runoff under BAT.

**O&G**

BPT daily max. and 30-day avg. limits = BCT daily max. and 30-day avg. limits.  
There are no O&G limits provided for contaminated runoff under BAT.

**Sulfide and NH<sub>3</sub>-N**

There are no additional pollutant loadings provided under BPT, BAT or BCT of the applicable FEG for these parameters.

**Total Phenols (phenolic compounds) & TOC**

BPT daily max. and 30-day avg. limits = BAT daily max. and 30-day avg. limits.  
There are no TPhenols limits provided for contaminated runoff under BCT.

**Hexavalent Chromium**

BPT daily max. and 30-day avg. limits = BAT daily max. and 30-day avg. limits/  
There are no TPhenols limits provided for contaminated runoff under BCT.

**Total Chromium**

BPT daily max. and 30-day avg. limits are less stringent than the BAT daily max. and 30-day avg. limits.

In this case, the BAT additional pollutant loading allowances will be carried forward for use in permit limit development for total chromium.

There are no TCr limits provided for contaminated runoff under BCT.

The additional pollutant loading allowances for contaminated runoff are developed based on the calculations appearing below. No up-to-date value was provided and the information in the application was copied from previous applications therefore, the amended value applied during the previous reissuance will be applied for these calculations. The contaminated precipitation runoff is 141,207 gallons per day.

The necessary calculations utilize this value of flow, and the BPT, BAT or BCT daily maximum and 30-day average limitations to develop a loading that will be added to the loadings allowed for process wastewater on a parameter-specific basis.

ATTACHMENT 6, continued  
EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS  
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Once the process wastewater and contaminated runoff allowances (below) are summed, this total pollutant-specific loading will be the final effluent limitations for outfall 101.

Documented flow of contaminated precipitation runoff = 141,207 gpd.

Additional loading = flow (as 1000 gal/day) X BPT or BAT, or BCT allowance

**BOD<sub>5</sub>**

Daily maximum allowance = 141.207 gpd X 0.40 #/1,000 gpd = 56.48 #/day  
30-day average allowance = 141.207 gpd X 0.22 #/1,000 gpd = 31.06 #/30-day

**TSS**

Daily maximum allowance = 141.207 gpd X 0.28 #/1,000 gpd = 39.54 #/day  
30-day average allowance = 141.207 gpd X 0.18 #/1,000 gpd = 25.42 #/30-day

**O&G**

Daily maximum allowance = 141.207 gpd X 0.13 #/1,000 gpd = 18.36 #/day  
30-day average allowance = 141.207 gpd X 0.067 #/1,000 gpd = 9.46 #/30-day

**TOC**

Daily maximum allowance = 141.207 gpd X 0.88 #/1,000 gpd = 124.26 #/day  
30-day average allowance = 141.207 gpd X 0.48 #/1,000 gpd = 67.78 #/30-day

**Total Phenols (phenolic compounds)**

Daily maximum allowance = 141.207 gpd X 0.0029 #/1,000 gpd = 0.41 #/day  
30-day average allowance = 141.207 gpd X 0.0014 #/1,000 gpd = 0.20 #/30-day

**Hexavalent Chromium**

Daily maximum allowance = 141.207 gpd X 0.00052 #/1,000 gpd = 0.07 #/day  
30-day average allowance = 141.207 gpd X 0.00023 #/1,000 gpd = 0.03 #/30-day

**Total Chromium**

Daily maximum allowance = 141.207 gpd X 0.0050 #/1,000 gpd = 0.71 #/day  
30-day average allowance = 141.207 gpd X 0.0018 #/1,000 gpd = 0.25 #/30-day

**Summary of Tables:**

- Table A: From FEG BPT, BAT, and BCT effluent limitations for calculating process wastewaters,  
Table B: Summary of process wastewater calculations for Total Phenols, Total Chromium, and Hexavalent Chromium based on feedstock capacity for each refinery process per BAT  
Table C: From FEG for use in calculating contaminated storm water run off for BPT, BAT, and BCT  
Table D1: Comparison Chart for most suitable limitations for process wastewaters  
Table D2: Comparison Chart for most suitable limitations for contaminated storm water run off  
Table E: Summation of Process and Run off allowances for final effluent limitations

**ATTACHMENT 6**  
**EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**  
**RATIONALE & SUITABLE DATA**

**TABLE A - APPLICABLE EFFLUENT LIMITATIONS AND DEVELOPMENT OF FINAL PART I.A. VALUES - OUTFALL 101**

Due to the peculiarities of the effluent limitations associated with this industrial sector, petroleum refinery, a comparison between the process wastewaters limitations is required and the most stringent amongst them shall be utilized in the preparation of the reissued permit. Although not fully detailed in past development documents, a summary of past actions will be set forth in this permit reissuance package. In 40 CFR 419.20 (Sub-Part B - Cracking Subcategory), limitations have been developed for Best Practicable Pollution Control Technology (BPT), Best Available PC Technology (BAT), and Best Conventional PC Technology (BCT). The table below will serve to set forth each of the limited parameters, for each of the three different categories of pollution control technologies addressed by the Federal Effluent Guidelines (FEG).

PARAMETER	BPT Maximum (lbs/1000 bbl feedstock)	BPT 30-Day Avg. (lbs/1000 bbl feedstock)	BAT Maximum (lbs/1000 bbl feedstock)	BAT 30-Day Avg. (lbs/1000 bbl feedstock)	BCT Maximum (lbs/1000 bbl feedstock)	BCT 30-Day Avg. (lbs/1000 bbl feedstock)
Biochemical Oxygen Demand (5-Day)	9.9	5.5	N/A	N/A	9.9	5.5
Total Suspended Solids	6.9	4.4	N/A	N/A	6.9	4.4
(**) Total Organic Carbon (BOD5 x 2.2)	21.8	12.1	21.8	12.1	N/A	N/A
Oil & Grease	3.0	1.6	N/A	N/A	3.0	1.6
Total Phenols (phenolic compounds)	0.074	0.036	***	***	N/A	N/A
Ammonia, as Nitrogen	6.6	3.0	6.6	3.0	N/A	N/A
Sulfide	0.065	0.029	0.065	0.029	N/A	N/A
Total Chromium	0.15	0.088	***	***	N/A	N/A
Hexavalent Chromium	0.012	0.0056	***	***	N/A	N/A
pH	Limited to the range of 6.0 - 9.0 standard units (SU)				Limited to the range of 6.0 - 9.0 standard units (SU)	

\*\* Due to the presence of excessive chloride ion concentration in the facility's process wastewater, it is a BPU determination to utilize TOC as a limiting parameter based on the provisions of the FEG at 40 CFR 419.13(d). The relevant TOC limitation is developed utilizing a 2.2:1 relationship between TOC and BOD5.

\*\*\* The FEG for these parameters require a special evaluation of the particular process streams at the facility and the calculations for these proposed limitations will appear on a following page, Table B.

**ATTACHMENT 6**  
**EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**  
**RATIONALE & SUITABLE DATA**

**TABLE B - APPLICABLE EFFLUENT LIMITATIONS AND DEVELOPMENT OF FINAL PART I.A. VALUES - OUTFALL 101**

The information that appears in the table below is a summary of calculations that will yield final effluent limitations for phenolic compounds (total phenols), total chromium and hexavalent chromium. BAT effluent limitations factors are found in 40 CFR 419.23(c)(1)(i). The final BAT limitations are developed considering the feedstock throughput (Mbbbls) in each of five separate process operations typically expected at petroleum refineries. The calculations resulting from considering each of the five categories of activities are additive and will result in a final limit for the refinery, for the substances noted above. Refer to the table where the facility's process configuration is detailed for the permittee's information on feedstock throughput for each of these operations is detailed.

PARAMETERS & BAT LIMITATIONS	CRUDE		CRACKING/COKING		ASPHALT		LUBE		REFORMING		REFINERY TOTALS
	MAX	AVG	MAX	AVG	MAX	AVG	MAX	AVG	MAX	AVG	
Phenolic Compounds	0.013	0.003	0.147	0.036	0.079	0.019	0.369	0.090	0.132	0.032	Daily maximum
Crude 190.0	Max. $190.0 \times 0.013 = 2.47$		Max. $52.4 \times 0.147 = 7.70$		N/A		N/A		Max. $11.8 \times 0.132 = 1.56$		11.73
Crack/coke 52.4											30-Day Average
Asphalt N/A	Avg. $190.0 \times 0.003 = 0.57$		Avg. $52.4 \times 0.036 = 1.89$						Avg. $11.8 \times 0.032 = 0.38$		2.84
Lube N/A											
Reform 11.8											
Total Chromium	0.011	0.004	0.119	0.041	0.064	0.022	0.299	0.104	0.107	0.037	Daily maximum
Crude 190.0	Max. $190.0 \times 0.011 = 2.09$		Max. $52.4 \times 0.119 = 6.24$		N/A		N/A		Max. $11.8 \times 0.107 = 1.26$		9.59
Crack/coke 52.4											30-Day Average
Asphalt N/A	Avg. $190.0 \times 0.004 = 0.76$		Avg. $52.4 \times 0.041 = 2.15$						Avg. $11.8 \times 0.037 = 0.44$		3.35
Lube N/A											
Reform 11.8											
Hexavalent Chromium	0.0007	0.0003	0.0076	0.0034	0.0041	0.0019	0.0192	0.0087	0.0069	0.0031	Daily maximum
Crude 190.0	Max. $190.0 \times 0.0007 = 0.13$		Max. $52.4 \times 0.0076 = 0.40$		N/A		N/A		Max. $11.8 \times 0.0069 = 0.08$		0.61
Crack/coke 52.4											30-Day Average
Asphalt N/A	Avg. $190.0 \times 0.0003 = 0.06$		Avg. $52.4 \times 0.0034 = 0.18$						Avg. $11.8 \times 0.0031 = 0.04$		0.28
Lube N/A											
Reform 11.8											

NOTE: The facility-specific production configuration values appearing in column 1, beneath each limited parameter, were provided by the permittee in an e-mail dated 2/4/10 and is provided in this attachment.

**ATTACHMENT 6**  
**EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**  
**RATIONALE & SUITABLE DATA**

**TABLE C - APPLICABLE EFFLUENT LIMITATIONS AND DEVELOPMENT OF FINAL PART I.A. VALUES - OUTFALL 101**

Due to the peculiarities of the effluent limitations associated with this industrial sector, petroleum refinery, a comparison between the contaminated storm water runoff limitations (additive to limitations for process wastewaters) is required and the most stringent amongst them shall be utilized in the preparation of the reissued permit. In 40 CFR 419.20 (Sub-Part B - Cracking Subcategory), limitations have been developed for Best Practicable Pollution Control Technology (BPT), Best Available PC Technology (BAT), and Best Conventional PC Technology (BCT). The table below will serve to set forth each of the limited parameters, for each of the three different categories of pollution control technologies addressed by the Federal Effluent Guidelines (FEG).

PARAMETER	BPT Maximum (lbs/1000 gal SW flow)	BPT 30-Day Avg. (lbs/1000 gal SW flow)	BAT Maximum (lbs/1000 gal SW flow)	BAT 30-Day Avg. (lbs/1000 gal SW flow)	BCT Maximum (lbs/1000 gal SW flow)	BCT 30-Day Avg. (lbs/1000 gal SW flow)
Biochemical Oxygen Demand (5-Day)	0.40	0.22	N/A	N/A	0.40	0.22
Total Suspended Solids	0.28	0.18	N/A	N/A	0.28	0.18
(**) Total Organic Carbon (BOD5 x 2.2)	0.88	0.48	0.88	0.48	N/A	N/A
Oil & Grease	0.13	0.067	N/A	N/A	0.13	0.067
Total Phenols (phenolic compounds)	0.0029	0.0014	0.0029	0.0014	N/A	N/A
Ammonia, as Nitrogen	N/A	N/A	N/A	N/A	N/A	N/A
Sulfide	N/A	N/A	N/A	N/A	N/A	N/A
Total Chromium	0.0060	0.0035	0.0050	0.0018	N/A	N/A
Hexavalent Chromium	0.00052	0.00023	0.00052	0.00023	N/A	N/A
pH	Limited to the range of 6.0 - 9.0 standard units (SU)				Limited to the range of 6.0 - 9.0 standard units (SU)	

\*\* Due to the presence of excessive chloride ion concentration in the facility's combined wastewater, it is a BPJ determination to utilize TOC as a limiting parameter based on the provisions of the FEG at 40 CFR 419.13(d). The relevant TOC limitation is developed utilizing a 2.2:1 relationship between TOC and BOD5.

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**TABLE D1 - APPLICABLE EFFLUENT LIMITATIONS AND DEVELOPMENT OF FINAL PART I.A. VALUES - OUTFALL 101**

This table defines the most suitable limitations for treated process wastewater discharges from outfall 101.

PARAMETER	BPT DAILY MAX (lb/day)	BAT DAILY MAX (lb/day)	BCT DAILY MAX (lb/day)	BPT 30-DAY AVG (lb/day)	BAT 30-DAY AVG (lb/day)	BCT 30-DAY AVG (lb/day)	BASIS FOR LIMITS
FLOW (MGD)	N/A	N/A	N/A	N/A	N/A	N/A	NO LIMIT, REPORT BOTH DAILY MAXIMUM AND MONTHLY AVERAGE FLOW VALUES
pH (SU), limited range	6.0 - 9.0	N/A	6.0 - 9.0	6.0 - 9.0	N/A	6.0 - 9.0	LIMITED TO RANGE OF 6.0 - 9.0 SU - BPT
BOD <sub>5</sub>	929.73	N/A	BPT = BCT	516.52	N/A	BPT = BCT	BPT
TSS	649.99	N/A	BPT = BCT	413.21	N/A	BPT = BCT	BPT
TOC	2045.40	BPT/BCT	N/A	1136.34	BPT/BCT	N/A	BPT
O & G	281.74	N/A	BPT = BCT	150.26	N/A	BPT = BCT	BPT
AMMONIA-N	619.82	BPT = BAT	N/A	281.74	BPT = BAT	N/A	BPT
SULFIDE	6.10	BPT = BAT	N/A	2.72	BPT = BAT	N/A	BPT
PHENOLIC COMPOUNDS	6.95	11.73	N/A	3.38	2.84	N/A	BPT for Maximum BAT for Average
TOTAL CHROMIUM	14.09	9.59	N/A	8.26	3.35	N/A	BAT
HEXAVALENT CHROMIUM	1.13	0.61	N/A	0.53	0.28	N/A	BAT

**ATTACHMENT 6**  
**EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**  
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**TABLE D2 - APPLICABLE EFFLUENT LIMITATIONS AND DEVELOPMENT OF FINAL PART I.A. VALUES - OUTFALL 101**

This table defines the most suitable limitations for discharges of treated precipitation runoff from outfall 101.

PARAMETER	BPT DAILY MAX (lb/day)	BAT DAILY MAX (lb/day)	BCT DAILY MAX (lb/day)	BPT 30-DAY AVG (lb/day)	BAT 30-DAY AVG (lb/day)	BCT 30-DAY AVG (lb/day)	BASIS FOR LIMITS
FLOW (MGD)	N/A	N/A	N/A	N/A	N/A	N/A	NO LIMIT, REPORT BOTH DAILY MAXIMUM AND MONTHLY AVERAGE FLOW VALUES
pH (SU), limited range	6.0 - 9.0	N/A	6.0 - 9.0	6.0 - 9.0	N/A	6.0 - 9.0	LIMITED TO RANGE OF 6.0 - 9.0 SU - BPT
BOD <sub>5</sub>	56.48	/A	BPT = BCT	31.06	N/A	BPT = BCT	BPT
TSS	39.54	N/A	BPT = BCT	25.42	N/A	BPT = BCT	BPT
TOC	124.26	BPT/BCT	N/A	67.78	BPT/BCT	N/A	BPT
O & G	18.36	N/A	BPT = BCT	9.46	N/A	BPT = BCT	BPT
AMMONIA-N							No additional allowance
SULFIDE							No additional allowance
PHENOLIC COMPOUNDS	0.41	BPT = BAT	N/A	0.20	BPT = BAT	N/A	BPT
TOTAL CHROMIUM	<del>0.85</del>	0.71	N/A	<del>0.49</del>	0.25	N/A	BAT
HEXAVALENT CHROMIUM	0.07	BPT = BAT	N/A	0.03	BPT = BAT	N/A	BPT



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**TABLE E - PROPOSED FINAL EFFLUENT LIMITATIONS AT OUTFALL 101 - (Summation of Process and Runoff allowances)**  
In accordance with DEQ guidance Memorandum 06-2016 (dtd 11/02/06), the final limitations will be rounded off in a manner consistent with this established permit development protocol.

PARAMETER	PROCESS DAILY MAX	RUNOFF DAILY MAX	PART I.A. DAILY MAX	PROCESS 30-DAY AVERAGE	RUNOFF 30-DAY AVERAGE	PART I.A. 30-DAY AVERAGE
FLOW (MGD)	No Limit	NL	NL	NL	NL	NL
pH (SU)	N/A		6.0 - 9.0	N/A		6.0 - 9.0
BOD5 (#/unit time)	929.73	56.48	(986.21) ⇨ 990	516.52	31.06	(547.58) ⇨ 550
TSS (#/unit time)	647.99	39.54	(687.53) ⇨ 690	413.21	25.42	(438.63) ⇨ 440
TOC (#/unit time)	2045.40	124.26	(2169.66) ⇨ 2200	1136.34	67.78	(1204.12) ⇨ 1200
O & G. (#/unit time)	281.74	18.36	(300.10) ⇨ 300	150.26	9.46	(159.72) ⇨ 160
AMMONIA-N (#/unit time)	619.82	0	(619.82) ⇨ 620	281.74	0	(281.74) ⇨ 280
SULFIDE (#/unit time)	6.10	0	(6.10) ⇨ 6.1	2.72	0	(2.72) ⇨ 2.7
TOTAL PHENOLS (#/unit time)	6.95	0.41	(7.36) ⇨ 7.4	2.84	0.20	(3.04) ⇨ 3.0
TOTAL CHROMIUM (#/unit time)	9.59	0.71	(10.3) ⇨ 10	3.35	0.25	(3.60) ⇨ 3.6
HEXAVALENT CHROMIUM (#/unit time)	0.61	0.07	(0.68) ⇨ 0.68	0.28	0.03	(0.31) ⇨ 0.31

ATTACHMENT 6, continued  
EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS  
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Outfall 102

Outfall 102 is permitted for discharge of once-through cooling water and reused water. The once-through cooling water is treated with a form of chlorine/bromide disinfection in order to control bio-fouling of the distribution system throughout the facility's process operations.

Prior to discharge, the wastewater is directed to a large circular basin for temperature equalization. At times, the permittee may redirect up to 5% of this equalized wastewater into an adjacent multi-cell sedimentation basin that receives precipitation runoff from areas that are expected to be free of contamination by petroleum products or associated residues or pollutants. The purpose for this action is to ensure that a minimum level of flow is present in this sedimentation basin at all times. If non-contact cooling water becomes contaminated by coming in to contact with any petroleum products, this condition would be readily detected by the inspection program in place at the facility.

The permittee submitted a model on the affects of the thermal discharge on the receiving stream in June of 1994 (applicable reference is enclosed). This model considered the wastewater flow and the expected ambient characteristics of the receiving stream at critical conditions. The Department accepted the model and resulting temperature limitation of 44°C. Based on BPJ and the fact that the activity and expected characteristics of the receiving stream have not changed significantly since the determination, the current temperature limitation will remain at 44°C. However, during the next reissuance if the discharge flow increases, the permittee should be requested to perform an update on the study.

The FEG under BPT, BAT and BCT, all reference non-contact cooling water.

Per BPT and BAT (40 CFR 419.22(d) and 419.23(e)):

"The quantity and quality of pollutants or pollutant properties controlled by this paragraph, attributable to once-through cooling water, are excluded from the discharge allowed by paragraph (b) of this section. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l."

Per BCT (40 CFR 419.24(d)):

"The quantity and quality of pollutants or pollutant properties controlled by this paragraph, attributable to once-through cooling water, are excluded from the discharge allowed by paragraph (b) of this section."

Basically, the numeric effluent limitations required for process wastewaters and contaminated precipitation runoff are not to be imposed on once-through cooling water with the exception of total organic carbon (TOC). This has been the approach in previous issuances based on the FEG and BPJ in that the permittee has no control over the TOC content of the source water (York River). In Virginia, the use of net limitations is allowed in similar situations (see 9 VAC 25-31-230 G).

Flow: There is no limit on flow. Monitoring is 1/Week with monthly average and daily maximum reporting requirements. The basis for this is BPJ and is believed necessary to evaluate the potential impact of the discharge on receiving waters. This is standard for industrial operations and no change from the previous permit.

ATTACHMENT 6, continued  
EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS  
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Temperature: A daily maximum of 44°C. Monitoring required is continuous with Immersion Stabilization. This is based on BPJ and Water Quality Standards, where thermal discharges are released to state waters need to be protective of the receiving stream after complete mix.

TOC A daily maximum limit of 5mg/l. Monitoring required is a 24 Hr. composite sample 1/Week. This is based on BPJ and the FEG for BPT, BAT and BCT. This approach was taken during the last permit reissuance and no changes are made for this reissuance.

Outfall 002

Outfall 002 is permitted to discharge precipitation from runoff associated with industrial activity, diverted flows from Outfalls 101 and/or 102, fire main wastewaters, uncontaminated wastewaters from hydrostatic testing (outfall 201), and reuse water.

Uncontaminated runoff is not addressed in the FEG and permitting activities have not changed since the previous reissuance therefore based on BPJ and review of the data, the limitations and monitoring parameters will continue for this outfall for this reissuance.

Flow: There is no limit on flow. Monitoring is 1/Week with monthly average and daily maximum reporting requirements. The basis for this is BPJ and is believed necessary to evaluate the potential impact of the discharge on receiving waters. This is standard for industrial operations and no change from the previous permit.

pH: The minimum limit is 6.0 s.u. and the maximum limit is 9.0 s.u. with monitoring 1/Week requirements. This requirement is based BPJ and the Water Quality Standards (9 VAC-260-50) to protect the Coastal Waters of the State. These limits and monitoring frequency are standard for industrial operations and no change from the previous permit.

TOC The maximum daily limit is 35 mg/l with monitoring 1/Week. The applicable limit in the FEG is 110 mg/l for a certain class discharge. However, the permittee readily meets the current limit and to increase this value would cause an anti-backsliding issue. Based on BPJ and to protect the current water quality of the receiving stream the current limit will continue for this reissuance.

Oil and Grease: The maximum daily limit is 15 mg/l with reporting only for monthly average. Monitoring is 1/week. Based on the possibility of petroleum contamination from any of the inputs to the system, the FEG recommends a limitation of 15 mg/l. Based on BPJ and to protect the current water quality of the receiving waters, this limit will continue for this reissuance.

ATTACHMENT 6, continued  
EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS  
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Temperature: A daily maximum of 44°C. Monitoring required is continuous with Immersion Stabilization. This is based on BPJ and Water Quality Standards, where thermal discharges are released to state waters need to be protective of the receiving stream after complete mix.

Total  
Phosphorus: The monthly average limit of 2.0 mg/l and reporting only for daily maximum. Monitoring is 1/Month. This is based on antibacksliding regulations, BPJ to protect water quality and is believed necessary to evaluate the potential impact of the discharge on receiving waters since the refinery process would generate compounds that contain phosphorus.

Total Arsenic: There is no limit on Arsenic and reporting only for monthly average and daily maximum. Monitoring is 1/Month. This is based on BPJ to protect water quality and is believed necessary to evaluate the potential impact of the discharge on the receiving waters since the refinery is constructing and managing CAMUs during this permit term.

Total Cadmium: There is no limit on Cadmium and reporting only for monthly average and daily maximum. Monitoring is 1/Month. This is based on BPJ to protect water quality and is believed necessary to evaluate the potential impact of the discharge on the receiving waters since the refinery is constructing and managing CAMUs during this permit term.

Total Chromium: There is no limit on Chromium and reporting only for monthly average and daily maximum. Monitoring is 1/Month. This is based on BPJ to protect water quality and is believed necessary to evaluate the potential impact of the discharge on the receiving waters since the refinery is constructing and managing CAMUs during this permit term.

Fecal  
Coliform: There is no limit, monitoring is a grab sample 2/Month. This is based on Water Quality Standards (9 VAC 25-260-160) and is believed protective of instream standards. Current guidance requires fecal coliform monitoring in salt or transition waters if the discharge is to shellfish waters. BPJ determines that this frequency is adequate to determine compliance with the standard.

Enterococci: There is no limit, monitoring is a grab sample 2/Month. This is based on BPJ and water quality standards (9 VAC25-260-160).

ATTACHMENT 6, continued  
EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS  
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Outfall 201

This outfall is permitted for hydrostatic test water and is an internal discharge to Outfall 002. The hydrostatic test waters are generated from integrity testing that may be performed on tanks, piping and other similar structures at the facility where no petroleum product residues or other sources of contaminants in the water are suspected to be present. The DEQ toxicity guidance document 00-2012 requires toxicity monitoring for all hydrostatic test waters. Toxicity monitoring has been added for the hydrostatic discharges, see Attachment 8.

Due to the infrequency of the hydrostatic testing, monitoring will be annually rather than monthly based on BPJ for this permit term.

Wastewaters from hydrostatic test water is not addressed in the FEG and permitting activities have not changed since the previous reissuance however internal guidance (VPDES permit manual) has changed for two parameters, Total Xylenes and Naphthalene and those parameter limitations are more stringent. Based on BPJ and review of the data, the limitations and monitoring for the remaining parameters will continue for this outfall for this reissuance.

Flow: There is no limit on flow. Monitoring is 1/Year with monthly average and daily maximum reporting requirements. The basis for this is BPJ and is believed necessary to evaluate the potential impact of the discharge on receiving waters. This is standard for industrial operations and no change from the previous permit.

pH: The minimum limit is 6.0 s.u. and the maximum limit is 9.0 s.u. with monitoring 1/Year requirements. This requirement is based BPJ and the Water Quality Standards (9 VAC-260-50) to protect the Coastal Waters of the State. These limits and monitoring frequency are standard for industrial operations and no change from the previous permit.

Total Petroleum

Hydrocarbons: The maximum daily limit is 15 mg/l with monitoring is 1/Year. Based on the possibility of petroleum contamination from any of the inputs to the system, the FEG recommends a limitation of 15 mg/l. Based on BPJ and to protect the current water quality of the receiving waters, this limit will continue for this reissuance.

Benzene: The maximum daily limit is 50 ug/l with monitoring 1/Year. The basis for this is BPJ and is believed necessary to evaluate the potential impact of the discharge on receiving waters. This is standard for this type of industrial operations and is consistent with relevant DEQ guidance.

Toluene: The maximum daily limit is 175 ug/l with monitoring 1/Year. The basis for this is BPJ and is believed necessary to evaluate the potential impact of the discharge on receiving waters. This is standard for this type of industrial operations and is consistent with relevant DEQ guidance.

ATTACHMENT 6, continued  
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- Ethylbenzene: The maximum daily limit is 320 ug/l with monitoring 1/Year. The basis for this is BPJ and is believed necessary to evaluate the potential impact of the discharge on receiving waters. This is standard for this type of industrial operations and is consistent with relevant DEQ guidance.
- Total Xylenes: The maximum daily limit is 33 ug/l with monitoring 1/Year. The basis for this is BPJ and is believed necessary to evaluate the potential impact of the discharge on receiving waters. This is more stringent than the previous limit of 82 ug/l. This standard for this type of industrial operations and is consistent with new relevant DEQ guidance.
- Naphthalene: The maximum daily limit is 10 ug/l with monitoring 1/Year. The basis for this is BPJ and is believed necessary to evaluate the potential impact of the discharge on receiving waters. This is more stringent than the previous limit of 62 ug/l. This is standard for this type of industrial operations and is consistent with new relevant DEQ guidance.
- Total Residual Chlorine: There is no limit on Total Residual Chlorine. Daily maximum monitoring reporting is 1/Year. The limit based on relevant DEQ guidance was removed during the last permit reissuance because the outfall is an internal point of discharge with the understanding that the permittee may not utilize potable water for this purpose as there are other sources of non-potable water available to test petroleum product storage and transfer equipment. There is no change for this parameter for this issuance.

ATTACHMENT 6, continued  
EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS  
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Outfall 004

Outfall 004 is permitted to discharge wastewater associated with fire main flushing and freeze protection at the offshore pier where tank vessels and barges moor during petroleum product transfer activities. Due to the dangers inherent with this industrial activity, the pier is fitted with fire-fighting stations and other supplies of water to this location. In order to properly operate the site, discharges of wasted fire main flush water periodically occur. During the winter months, a number of connections are allowed to discharge small amounts of water for freeze protection.

Reclamation and reuse waters are used for this process as the schematics submitted for this application illustrate. Upon further review and explanation, the reclamation and reuse waters are directly piped to the offshore pier from HRSD. HRSD is in a contract with the facility which ensures these waters meet the standard for Level 1 Reclaimed Water as defined in 9 VAC 25-740 et seq. However, the facility remains responsible for the discharges based on the permit and the documentation from HRSD should be kept on site by permittee in accordance with Part II of the VPDES permit.

Based on a previous permitting determination, there are no monitoring requirements effluent limitations applied to this discharge. Based on a BPJ determination, this approach to the permitting of this discharge shall be continued. The associated Part I.A. page of the permit will carry the following language to address the potential for a discharge of wastewaters not allowed by the permit at this location.

THIS OUTFALL SHALL CONTAIN ONLY DISCHARGES OF FIRE MAIN FLUSHING WASTEWATERS AND DISCHARGES ASSOCIATED WITH FREEZE PROTECTION AT AREAS ASSOCIATED WITH PIER OPERATIONS. THERE SHALL BE NO DISCHARGE OF REFINERY PROCESS WASTEWATERS FROM THIS SOURCE.